## REMARKS

This application has been reviewed in light of the Office Action dated August 24, 2005. Claims 1-19 are pending in the application. Claims 20-28 have been cancelled without prejudice. By the present amendment, claims 1 and 10 have been amended. No new matter has been added. The Examiner's reconsideration of the rejection in view of the amendment and the following remarks is respectfully requested.

By the Office Action, claims 1-2, 8-10 and 16-19 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Application No. 2001/0043078 to Kantz et al. (hereinafter Kantz).

The Applicants respectfully disagree with the rejection.

Kantz is directed to a built in test unit which includes a solar cell to provide power to the testing function. The built in test procedure includes writing data to data elements and then reading the data to determine failures. The built-in test can only be performed on a completed memory device. The test process of Kantz is useless for in-process testing. If for example, in forming a metal layer for the memory cell a processing error occurred, Kantz would not be able to determine any failure until the completed memory devices were available. The solar cell is an additional feature which is added to the completed device or formed with the device. (It is not clear which). The solar cell is to attempt to save time and money on testing (see e.g., paragraph 5 of Kantz).

In stark contrast, the present invention is directed to a manufacturing tool that permits testing of characteristics of a device during processing. So, for example, after a metal deposition, the metal may be tested to determine if the process was properly performed.

Advantageously, the present invention is not intrusive. The components used for testing do not alter the design of other chips on a wafer. Instead, the measurement device is formed on a designated chip or in the kerf area on the same substrate as the product IC chips.

Claim 1 of the present invention recites, *inter alia,* a system for measuring circuits on an integrated circuit substrate including a measurement circuit formed on the integrated circuit substrate which measures at least one characteristic of an integrated circuit, the measurement circuit comprising a power transfer device including a power transfer component, which receives energy from a source where the source does not make physical contact with the integrated circuit substrate to transfer power to the measurement circuit, the measurement circuit including components that mirror behavior of the integrated circuit so that process parameters measured for the components to provide information about processing.

Kantz includes memory chips, each having its own solar cell so that the chips may perform a self-test. The chip has been completely manufactured and the solar cell is incorporated into the chip itself taking up valuable real estate and affecting the overall design. The solar cell is provided for checking the memory array by writing data in a fashion that is performed by normal memory device operations on a completed chip.

Kantz fails to disclose or suggest at least a system for measuring circuits on an integrated circuit substrate where the measurement circuit includes components that mirror behavior of the integrated circuit so that process parameters measured for the components to provide information about processing.

There is no disclosure or suggestion in Kantz that any components are checked in-situ during the fabrication process. Contrast this with the present invention which is employed to measure in-situ processing parameters or conditions to determine at an early stage whether or not

to scrap the wafer. The measurement circuit of the present invention is not formed on the product integrated circuit chips, but is formed separately but on the same substrate (See e.g., FIG. 1 and claim 1 of the present invention) so as to experience the same processing parameters. As now recited in claim 1, the measurement circuit includes components that mirror behavior of the integrated circuit so that process parameters measured for the components to provide information about processing. Support for this amendment is found throughout the present disclosure and in particular at page 7, lines 1-17.

Nowhere in Kantz is a measurement circuit, that includes components that mirror behavior of the integrated circuit so that process parameters measured for the components to provide information about processing, disclosed or suggested. Kantz fails to disclose or suggest at least these features. Since Kantz fails to disclose or suggest all elements of the present invention, claim 1 is believed to be in condition for allowance for at least the reasons stated.

Claim 10 recites, *inter alia*, a system for measuring circuits on an integrated circuit substrate, comprising a semiconductor wafer including a plurality of chips, a measurement circuit formed on at least one of the chips, the measurement circuit measures at least one characteristic of an integrated circuit, the measurement circuit including a power transfer component which receives energy from a source where the source does not make physical contact with the semiconductor wafer to transfer power to the measurement circuit, and a test device including the source, which delivers energy to the power transfer component of the measurement circuit when in alignment with the power transfer component.

Claim 10 includes a test device that includes the source and provides energy when in alignment with a power transfer component. Kantz uses a solar cell, but does not include a test device which delivers energy to the power transfer component of the measurement circuit

when in alignment with the power transfer component. No such test device is disclosed or suggested by Kantz. In addition claim 10 of the present invention describes that the system for measuring circuits on an integrated circuit substrate, includes a semiconductor wafer including a plurality of chips and a measurement circuit is formed on at least one of the chips. Kantz fails to disclose or suggest a semiconductor wafer where at least one of the chips is a measurement circuit. In fact, all chips of Kantz are manufactured with solar cells but not tested on the semiconductor wafer.

Since Kantz fails to disclose or suggest all elements of the present invention, claim 10 is believed to be in condition for allowance for at least the reasons stated.

Claims dependent from claims 1 and 10 are also believed to be in condition for allowance at least due to their dependencies from claims 1 and 10. The dependent claims are believed to be allowable for other reasons as well. For example, claim 17 recites that the test device includes a thin film dielectric membrane having the source mounted thereon, and claim 18 recites that the test device includes a probe ring. These elements are not disclosed or suggested by any of the cited art. Reconsideration of the rejection is earnestly solicited.

By the Office Action, claims 3 and 11 stand rejected under 35 U.S.C. §103(a) as being anticipated by Kantz in view of U.S. Patent No. 6,787,801 to Fischer et al. (hereinafter Fischer).

The Applicant respectfully disagrees with the rejection since Fischer fails to cure the deficiencies of Kantz as set forth above. Claims 3 and 11 are therefore believed to be in condition for allowance for at least the above mentioned reasons. Reconsideration is respectfully requested.

By the Office Action, claims 4 and 12 stand rejected under 35 U.S.C. §103(a) as being anticipated by Kantz in view of U.S. Patent No. 6,906,495 to Cheng et al. (hereinafter Cheng).

The Applicant respectfully disagrees with the rejection since Cheng fails to cure the deficiencies of Kantz as set forth above. Claims 4 and 12 are therefore believed to be in condition for allowance for at least the above mentioned reasons. Reconsideration is respectfully requested.

By the Office Action, claims 5 and 13 stand rejected under 35 U.S.C. §103(a) as being anticipated by Kantz in view of U.S. Patent No. 6,686,760 to Hirt et al. (hereinafter Hirt).

The Applicant respectfully disagrees with the rejection since Hirt fails to cure the deficiencies of Kantz as set forth above. Claims 5 and 13 are therefore believed to be in condition for allowance for at least the above mentioned reasons. Reconsideration is respectfully requested.

By the Office Action, claims 6 and 14 stand rejected under 35 U.S.C. §103(a) as being anticipated by Kantz in view of Hirt and further in view of U.S. Patent Application No. 2002/0047722 to Cook et al. (hereinafter Cook).

The Applicant respectfully disagrees with the rejection since Cook and Hirt fail to cure the deficiencies of Kantz as set forth above. Claims 6 and 14 are therefore believed to be in condition for allowance for at least the above mentioned reasons. Reconsideration is respectfully requested.

By the Office Action, claims 7 and 15 stand rejected under 35 U.S.C. §103(a) as being anticipated by Kantz in view of Cook.

The Applicant respectfully disagrees with the rejection since Cook fails to cure the

deficiencies of Kantz as set forth above. Claims 7 and 15 are therefore believed to be in condition for allowance for at least the above mentioned reasons. Reconsideration is respectfully requested.

In view of the foregoing amendments and remarks, it is respectfully submitted that all the claims now pending in the application are in condition for allowance. Early and favorable reconsideration of the case is respectfully requested.

It is believed that no additional fees or charges are currently due. However, in the event that any additional fees or charges are required at this time in connection with the application, they may be charged to applicant's IBM Deposit Account No. 50-0510.

Respectfully submitted,

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